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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/804,719	03/19/2004	Nusrallah Jubran	3216.58US02	7514
47604	7590	07/16/2008		
DLA PIPER US LLP P. O. BOX 9271 RESTON, VA 20195				
EXAMINER				
DOTTE, JANIS L				
ART UNIT		PAPER NUMBER		
1795				
MAIL DATE		DELIVERY MODE		
07/16/2008		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary****Application No.**

10/804,719

**Applicant(s)**

JUBRAN ET AL.

**Examiner**

Janis L. Dote

**Art Unit**

1795

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 June 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 4-14, 17-19, 28 and 31-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 4, 5, 7-14, 17, 18, 28, 31 and 32 is/are rejected.
- 7) ☒ Claim(s) 6, 19 and 33 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

1. A request for continued examination (RCE) under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicants' submission filed on Jun. 11, 2008, has been entered.
2. The examiner acknowledges the amendments to claims 1, 11, and 28 filed on Mar. 27, 2008, which was entered on the filing of the RCE. Claims 1, 4-14, 17-19, 28, and 31-33 are pending.
3. Applicants' claim for domestic priority under 35 U.S.C. 119(e) is acknowledged. However, the provisional applications upon which priority is claimed fail to provide adequate support under 35 U.S.C. 112 for claims 1, 4-14, 17-19, 28, and 31-33 of this application for the reasons discussed in the office action mailed on May 31, 2006, paragraph 4, which are incorporated herein by reference.

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1, 4, 5, 8, 9, 11-14, 17, 18, 28, 31, and 32 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-22 and 35-42 of US 7,261,987 B2 (US'987), as evidenced by that portion of the disclosure in US'987 that supports the subject matter recited in the claims of US'987, and by applicants' definition of the term "group" in the instant specification at page 10, lines 13-26.

Although the conflicting claims are not identical, they are not patentably distinct from each other because the claimed subject matter recited in US'987 renders obvious the subject matter recited in the instant claims.

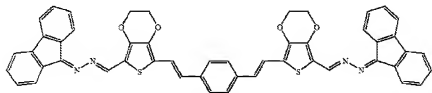
Reference claim 8, which depends from reference claim 7, which depends from reference claim 1, recites an organophotoreceptor comprising a photoconductive element and an electrically conductive substrate, where the photoconductive element comprises a charge generation material and a charge transport compound. Reference claim 9, which depends from reference claim 1, requires that the photoconductive element

further comprise a second charge transport material, which meets the second charge transport material limitation recited in instant claims 8 and 9. Reference claim 19, which depends from reference claim 18, which depends from reference claim 12, recites an electrophotographic imaging apparatus comprising a light imaging component and an organophotoreceptor comprising a photoconductive element and an electrically conductive substrate, where the photoconductive element comprises a charge generation material and a charge transport compound. Reference claim 22, which depends from reference claim 12, requires that the apparatus further comprise a toner disperser, which meets the toner disperser component recited in instant claim 12. Reference claim 20, which depends from reference claim 12, requires that the photoconductive element further comprise a second charge transport material, which meets the second charge transport material limitation recited in instant claims 13 and 14. Reference claim 42, which depends from reference claim 41, which depends from reference claim 35, recites a charge transport compound.

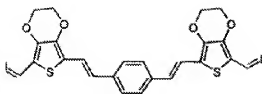
The charge transport compound recited in reference claims 8, 19, and 42, is represented by the formula recited in reference claims 1, 12, and 35, respectively, where the group  $R_1$


is represented by either of the two formulas recited in reference claims 7, 18, and 41, and the Z groups in those two formulas can be the azine-containing-9-fluorenylidene group (i.e., the third formula) recited in reference claims 8, 19, and 42. Reference claims 5, 16, and 39, which depend from reference claims 1, 12, and 35, respectively, require that the group Y in the charge transport compound formula recited in instant claims 1, 12, and 35, be a fluorenylidenyl group and that R<sub>3</sub> be a bond between Y and the carbon atom adjacent to Y. The claims of US'987 do not explicitly recite any examples of the charge transport material. However, that portion of US'987 that supports the charge transport material of the formula recited in the reference claims teaches that such a charge transport material can be represented by chemical formula (3) at cols. 17-18 of US'987.

Chemical formula (3) is:



The following group in chemical formula (3)



is a "1,4-phenylenedimethyldiyne group," i.e.,  group, which is one of the members of the "X" Markush recited in instant claims 1, 11, and 28. 1,4-phenylenedimethyldiyne is substituted with two of the following groups



The substitution of the two groups does not alter the "fundamental bond structure" of 1,4-phenylenedimethyldiyne. According to the instant specification at page 10, lines 13-26, the term "'group' indicates that the generically recited chemical moiety (e.g., alkyl group. . . 1,4-phenylene-dimethyldiyne group . . . ) may have any substituent thereon which is consistent with the bond structure of that group. For example, where the term 'alkyl group' is used, that term would not only include unsubstituted linear, branched and cyclic alkyls, such as methyl, ethyl . . . but also substituents having

heteroatom, such as 3-ethoxylpropyl . . . and the like, and aromatic group, such as phenyl, naphthyl, carbazolyl, pyrrole, and the like. However, as is consistent with such nomenclature, no substitution would be included within the term that would alter the fundamental bond structure of the underlying group." Thus, the term 1,4-phenylenedimethyldiyne group appears to read on 1,4-phenylenedimethyldiyne substituted by any functional group that does not alter the fundamental bond structure of the underlying group.

Accordingly, the US'987 compound in chemical formula (3) is within the compositional limitations of the formula recited in the instant claims. That charge transport material meets the charge transport material formula recited in reference claims 1, 4, 5, 11, 17, 18, 28, 31, and 32. When addressing the issue of whether a claim in an application defines an obvious variation of an invention claimed in a patent, "those portions of the specification which support the patent claims may be also be examined and considered." See MPEP 804.II.B.1, p. 800-22, citing In re Vogel, 164 USPQ 619, 622 (CCPA 1970). US'987 compound (3) meets the charge transport material formula recited in the instant claims.



It would have been obvious for a person having ordinary skill in the art, in view of the subject matter recited in the claims of US'987, as evidenced by that portion of the disclosure in US'987 that supports the subject matter recited in the claims of US'987 and by applicants' definition of the term "group," to make and use a charge transport material that is within the compositional limitations of the formula recited in the instant claims, and to use the resultant compound as the charge transport material in the organophotoreceptor and in the imaging apparatus recited in the claims of US'987. That person would have had a reasonable expectation of successfully obtaining a charge transport compound that is capable of transporting charges in an organophotoreceptor, and an organophotoreceptor and an electrophotographic imaging apparatus that are capable of being used in an electrophotographic process to provide toned images.

6. Claims 7 and 10 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-22 and 35-42 of copending US'987, as evidenced by that portion of the disclosure in US'987 that supports the subject matter recited in the claims of US'987 and

applicants' definition of the term "group" in the instant specification at page 10, lines 13-26, in view of Diamond, Handbook of Imaging Materials, pp. 395-396.

The subject matter recited in the claims of US'987, as evidenced by that portion of the disclosure in US'987 that supports the subject matter recited in the claims of US'987 and by applicants' definition of the term "group," renders obvious the organophotoreceptor as described in paragraph 5 above, which is incorporated herein by reference. In addition, reference claim 11, which depends from reference claim 1, further requires that the photoconductive layer in the organophotoreceptor further comprise a binder.

The reference claims of US'987 do not recite that the photoconductive element comprises a charge generation layer comprising the charge generation material and a polymeric binder and a charge transport layer comprising the charge transport compound and a polymeric binder as recited in instant claim 7. Nor do the claims recite that the organophotoreceptor comprises a flexible belt or a drum to support the electrically conductive substrate as recited in instant claim 10.

However, multi-layered photoconductive elements and the use of a flexible belt or drum in organophotoreceptors are well

known in the electrophotographic arts. Diamond discloses that photoreceptor fabrication involves the sequential application of one or more layers. Page 395, lines 10-11. Figure 9.7 in Diamond illustrates a "typical photoreceptor cross section." The photoreceptor in Figure 9.7 comprises a charge generation layer and a charge transport layer. Diamond discloses that the photoconductive layer can equally be a single layer that functions as both a charge generation and a charge transport layer. Page 395, lines 25-27. Diamond further discloses that the support of the photoreceptor can be a metal cylinder, i.e. a drum, or a flexible belt. Page 395, lines 12-13, and page 396, lines 4-9.

It would have been obvious for a person having ordinary skill in the art, in view of teachings in Diamond and the subject matter recited in the reference claims of US'987, as evidenced by that portion of the disclosure in US'987 that supports the subject matter recited in the claims of US'987 and by applicants' definition of the term "group," to make and use a photoconductive element comprising a charge generation layer comprising the charge generation material and a polymeric binder and a charge transport layer comprising the charge transport material and a polymeric binder as recited in instant claim 7,

and to use a metal cylinder or a flexible belt to support the electrically conductive substrate in the organophotoreceptor rendered obvious over the claimed subject matter recited in US'987. That person would have had a reasonable expectation of successfully obtaining an organophotoreceptor that is capable of being used in an electrophotographic process to provide toned images.

7. Applicants' arguments filed on Mar. 27, 2008, as applicable to the rejections set forth in paragraphs 5 and 6 above have been fully considered but they are not persuasive.

Applicants assert that the charge transport material recited in instant claims 1, 11, and 28 is patentably distinct from the charge transport material claimed in US'987 because the charge transport material in US'987 comprises a 1,4-phenylene-dimethyldiyne group that is not bonded to adjacent nitrogen atoms. Applicants assert that the formula  $Y=N-N=X=N-N=Y'$  recited in instant claims 1, 11, and 28 "requires that if X is a 1,4-phenylenedimethyldiyne group, the 1,4-phenylenedimethyldiyne group is bonded on either side of the group to a nitrogen atom." Applicants further assert that the instant specification "notes that, although substitution is liberally allowed on the chemical

groups, the X group of the formula of claims 1, 11, and 28 has at least 2  $sp^2$  hybridized carbon atoms that bond to the adjacent nitrogen atoms to complete the azine groups," referencing page 21, lines 24-27, and page 10, lines 9-11.

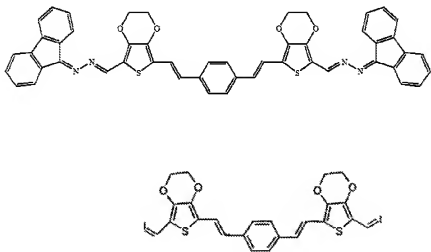
Applicants' assertions are not persuasive for the following reasons:

(1) Instant claims 1, 11, and 28 recite that in the formula  $Y=N-N=X=N-N=Y'$ , "X is a conjugated linking group that allows the delocalization of pi electrons over at least Y and Y', wherein X further is a . . . 1,4-phenylenedimethylidyne group" (emphasis added). Claims 1, 11, and 28 do not require that the group 1,4-phenylenedimethylidyne be bonded directly to the adjacent nitrogen atoms, as asserted by applicants. Applicants cannot argue for patentability based on limitations that are not present in the claims.

(2) The claim language in instant claims 1, 11, and 28 does not exclude the presence of "X" groups that comprise other groups in addition to 1,4-phenylenedimethylidyne. As discussed in paragraph 5 above, according to the instant specification at page 10, lines 13-26, the term "'group' indicates that the generically recited chemical moiety (e.g., alkyl group. . . 1,4-phenylene-dimethylidyne group . . . ) may have any

substituent thereon which is consistent with the bond structure of that group." In other words, the term "1,4-phenylenedimethylidyne group" includes not only 1,4-phenyldimethylidyne but any substituted 1,4-phenyldimethylidyne so long as it comprises the fundamental bond structure of 1,4-phenylenedimethylidyne and is a conjugated linking group that allows delocalization of pi electrons as recite in instant claims 1, 11, and 28. Thus, the language in instant claims 1, 11, and 28 does not exclude the US'987 charge transport material of formula (3).

(3) The US'987 formula (3)



comprises the group , which is a 1,4-phenylenedimethylidyne group. As discussed in paragraph 5 above, 1,4-phenylenedimethylidyne is substituted with two of the following groups



The substitution of the two groups does not alter the "fundamental bond structure" of the 1,4-phenylenedimethyldiyne group. The US'987 group is a conjugated linking group that allows delocalization of pi electrons over the terminal 9-fluorenylidene groups and is directly bonded to the adjacent nitrogen atoms to complete the two azine groups, which meet the requirements disclosed in the instant specification. Thus, the US'987 charge transport material meets the charge transport material formula recited in the instant claims.

Accordingly, the rejections set forth in paragraphs 5 and 6 stand.

8. Claims 6, 19, and 33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art of record does not teach or suggest the charge transport material selected from the Markush group recited in those claims.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (571) 272-1382. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Mark Huff, can be reached on (571) 272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry regarding papers not received regarding this communication or earlier communications should be directed to Supervisory Application Examiner Ms. Sandra Sewell, whose telephone number is (571) 272-1047.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Janis L. Dote/  
Primary Examiner, Art Unit 1795

JLD  
July 10, 2008